want of definition due to irregular calcification. In this article there are reported 3 cases which show these signs and symptoms. One of these cases has since died as a result of uremia. Postmortem the kidneys were found to be very small and fibrotic. Microscopically there was a very marked interstitial nephritis.

GYNECOLOGY

UNDER THE CHARGE OF

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Effect of Radium on Cervical Cancer.—A very extensive study of the histological changes in squamous-cell carcinoma of the cervix of the uterus after radiation has been made by ALTER (*Jour. Med. Research*, 1919, xl, 241) during the course of which he determined that the so-called "squamous"-cell carcinoma of the cervix is a basal-cell growth, having three types: Solid, adenoid and cystic. The primary effect of the rays of radium in the case of the basal-cell carcinoma of the cervix is the destruction of the cells of the malignant parenchyma. The increase of stroma is secondary, due to the disappearance of parenchyma, having been formed mostly from wandering cells. Cell divisions, even if probable, are not primarily important. In his long series of histological investigations, invariably the chromatin substance of the parenchyma cells displayed the greatest sensitiveness toward the rays of radium, showing conspicuous features of destruction while the protoplasm of the parenchyma cells showed marked but not such obvious changes. Alter believes that the changes of the protoplasm and the nature of the infiltration seem to suggest the different stages of deep-seated chemical changes, due to the action of the rays of radium.

The Cystic Ovary.—A moderate acquaintance with the cystic ovary, gleaned through serious and earnest attention whenever the condition was encountered during an abdominal section, has led REDER (*Am. Jour. Obst.*, 1919, lxxx, 719) during latter years into a different channel of reasoning relative to the treatment of this condition, from which he entertained during former years. The cystic ovary, which is being considered in this article, is not the organ which has suffered from a microbic invasion; but the organ which, through adverse influences, resonably assumed to be mechanical in their nature has suffered changes in its stroma and epithelial structure that have carried it beyond recognized physiologic limits. Furthermore, this argument is confined to ovaries belonging to unmarried women, ranging from fourteen to twenty-five years, where the cystic degeneration was discovered during an abdominal section performed for a lesion not in any way associated with the ovary. In those instances in which resection of the ovary was decided upon the guiding principles were the large number of cysts present. An ovary which showed a moderate amount of cystic degeneration was not resected; but a prolapse or faulty position of the uterus was invariably corrected, and the future fate of the ovary trusted to the correction of the displaced uterus. When during an abdominal operation an ovary is encountered which presents on its surface from five to eight cysts, varying in size from a pea to a small hazel nut, the author believes the ovary is pathological and is a proper one for resection. It is logical, he believes, to infer that in instances of this kind, many more cysts are imbedded deeper down and throughout the glandular substance of the ovary, and that their presence creates a pressure atrophy of the functional elements with the concomitant inhibitive efficiency of the organ. Simply puncturing these cysts and evacuating the light, thin serous fluid, which may, in some cases, be brownish or blood-stained, is a procedure of little promise for an ovary in which cystic degeneration has gone beyond the physiologic limits. This procedure is not to be recommended for cysts projecting above the surface of the ovary, as it carries with it no assurances of good. The smaller cysts, grouped deeper in the glandular substance, where removal during resection is not deemed advisable on account of the great sacrifice of healthy ovarian tissue, may be punctured because the cyst is small, its walls delicate, and furthermore, because it is the only surgical measure permissible. As a result of his investigation into this subject, the author concludes that without an abnormal position of the uterus, be it a retrodeviation or a descensus due to ligamentous relaxation, there is seldom a prolapsus of the ovary; without prolapsus of the ovary, there is no abnormal hyperemia; and without an abnormal hyperemia, cystic degeneration of the ovary is rare.

Treatment of Tubal Infection.—Having analyzed the case records of 1000 patients who were operated upon at the Cook County Hospital for tubal infection, Woolston and White (*Surg. Clinics*, Chicago, December, 1919, p. 1495) state that the end-results are very discouraging in those cases in which conservative surgery has been practised, since many of the patients must return for further treatment. Of course it is always desirable to attempt to save the ovaries especially in young women, on account of the value of the internal secretion of the ovary, but they do not think that it is advisable to preserve *diseased* ovaries even in young women, as they are so liable to give trouble later. They would divide the treatment of chronic pelvic infections into the conservative and the radical, the choice of treatment depending upon the social condition of the patient to a great extent. If a person is well to do, rest in bed, good nursing and general hygienic measures will cure many cases. These cases can well afford to risk a certain number of acute exacerbations in the hope that spontaneous healing may occur and operation be thus avoided. With the less fortunate patient who cannot afford to be sick, because she is employed or because she must go to a charity hospital where beds are limited, operation is indicated sooner. Also, if a patient has a family of children or is beyond the climacteric she may submit to a radical operation; whereas a patient who has no children but who is within the childbearing age and desires motherhood can afford to take conservative measures over a longer period of time, hoping that nature will heal the tubes so that conception may take place. If operation has been decided upon, which, of course, is never during an acute attack, one should be sure to remove all the pathological tissue, which is so often only partially removed. In the gonorrheal form the infection is practically always in both tubes as well as the *pars interstitialis*. This means a hysterectomy or an amputation of the uterus, which is sometimes called a Bell-Beuttner operation, as modified by Polak. In the streptococcic form of infection in which the patient has survived the acute stage, but where symptoms remain, operation is delayed as long as possible, as latent organisms are sometimes aroused to activity by operative interference, and an apparently simple case will die of streptococcic peritonitis. In the high amputation operation, menstruation can be preserved and still the pathology can be removed. In doing this operation, one might ask why we should preserve the menstrual function. Although its preservation is considered purely sentimental by some, it seems worth while in those cases where it can safely be done. We must, however, remove all pathology irrespective of age or other conditions.

Lethal Dose of Roentgen Rays in Cancer.—Within the last few years, and especially since the introduction of the Coolidge tube, much has been accomplished in the establishment of suitable dosage for the therapy of superficial and benign skin lesions with the roentgen ray. The lethal dose for cancer cells, however, has not been accurately determined for filtered rays of short wave length such as are now used for deep therapy. For this reason some experimental work that has been performed by WOOD and PRIME (*Jour. Am. Med. Assn.*, 1920, lxxiv, 308) under the George Crocker Special Research Fund, is timely and of definite practical value. They found that approximately four erythema doses of roentgen ray, given continuously and filtered through 3 mm. of aluminum, are required to kill mouse carcinoma, and five to kill mouse sarcoma exposed *in vitro*; but occasionally some cells may escape the effects of even six doses. Approximately six erythema doses of roentgen ray are required to kill sarcoma cells *in vivo*, as compared to five required to kill the same cells *in vitro;* and approximately six erythema doses are required to kill carcinoma cells *in vivo* as compared to four to kill the same cells *in vitro*. The *in vitro* outgrowth from sarcoma tissue after four erythema doses of roentgen ray, still produced tumors when inoculated into mice and therefore the amount of *in vitro* growth is no indication whether the tumor cell is or is not capable of proliferating in the animal body. The growth observed after lethal doses is evidently due to the slow action of the rays, which permits cells potentially dead to wander out into the medium and to complete a division process before their growth momentum is finally checked. It is important to remember that absence of mitotic figures after roentgen-ray treatment is not an indication of lack of ability of the cells to grow in the animal body. The practical conclusion which may be drawn from these observations is that the amount of roentgen ray necessary to kill all the cells of a rapidly growing, very cellular and highly malignant sarcoma or carcinoma in man is between five and seven erythema doses of filtered roentgen ray when the tumor is on the surface of the body. Every centimeter of tissue that covers the tumor makes an additional amount of roentgen ray necessary. For example, when slices of fibroid tumor are used as absorptive material the galvanometer deflections show that at a depth of 2 cm. 19 per cent. more roentgen ray is required; at 5 cm. depth, 47 per cent. more; at 10 cm. depth, 65 per cent. more. While many tumor cells may possibly be slowed in their progress and mitotic forms killed at such depths, it is doubtful whether all can be destroyed. The basal-cell tumors and the lymphosarcomata are, as is well known, much more susceptible to radiation. Small, superficial, metastatic carcinomata are also, in some instances, more susceptible than is the primary tumor.

OPHTHALMOLOGY

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Keratitis Profunda or Disciformis.—Verhoeff (*Arch. Ophthal.*, September, 1919, p. 449), in reporting an instance of this affection with microscopic examination, concludes that disciform keratitis may be produced by a variety of causes, and from an etiological standpoint is therefore not an entity. Certain cases are of the same nature as keratitis profunda. The corneal changes in the latter affection are due to the action of diffusible toxic substances arising near the anterior surface. The changes consist in alteration of the epithelium, destruction of the corneal corpuscles and injury to the stroma in the anterior layers of the cornea, and proliferation of the corneal corpuscle behind and around the injured area. In addition, there is injury to, or destruction of the endothelium, and in severe cases, deposition of fibrin and leukocytes on Descemet's membrane, behind the affected area. Leukocytic infiltration of the corneal stroma is conspicuously absent. The microscopic findings in the case reported strongly indicate a neuropathic origin for keratitis profunda.

Loss of Vision of One Eye Without Appreciable Organic Lesions Consecutive to a Shell Wound of the Other Eye.—Lapersonne (*Arch. d'ophtal.*, xxxvi, 639) reports the case of a soldier, aged forty-five years, who was wounded by a shell in the left eye with consecutive cataract and loss of vision of this eye. Subsequently the right eye developed marked functional disturbances, not due to sympathetic ophthalmia. Complete blindness supervened. Two years later, no lesion of the fun-